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REV	DESCRIPTION	BY	DATE
1.0		Alif	MM-DD-YY
1.1		Alif	MM-DD-YY
1.2		Alif	MM-DD-YY
1.3		Alif	MM-DD-YY

BARE PCB#	110-00102-B
PCB FAB#	210-00102-B
PCB ASSY#	120-00102-B



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Title: <b>TOC</b>		
Sch: <b>BASEBOARD</b>		
Size <b>B</b>	Job # <b>220-00102-B</b>	Sheet: <b>1</b> of <b>12</b>
Date: <b>Friday, November 5, 2021</b>		

## Colours for Notes

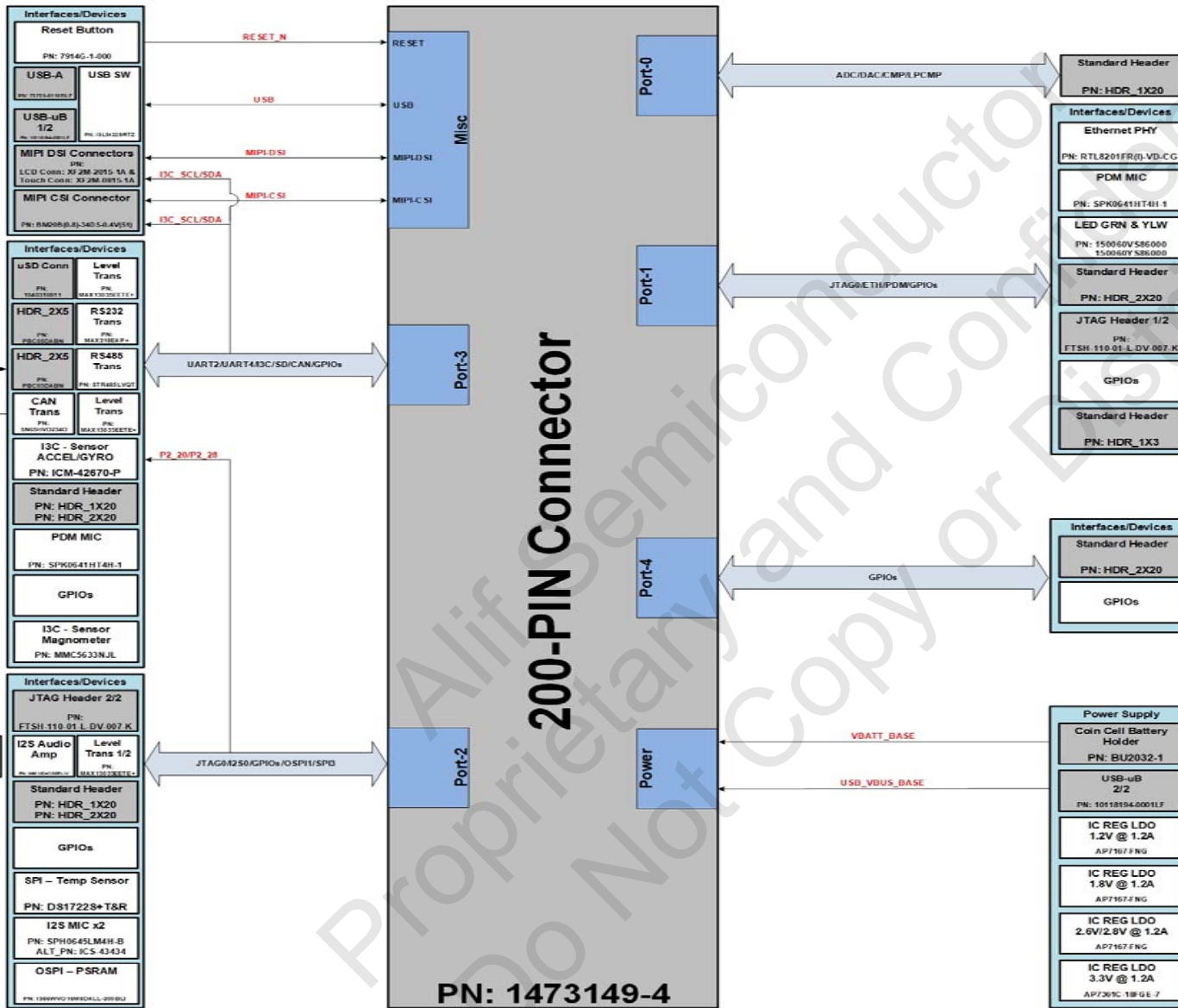
Rework/Testing Notes

Embedded Notes

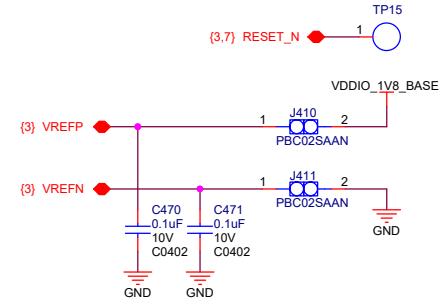
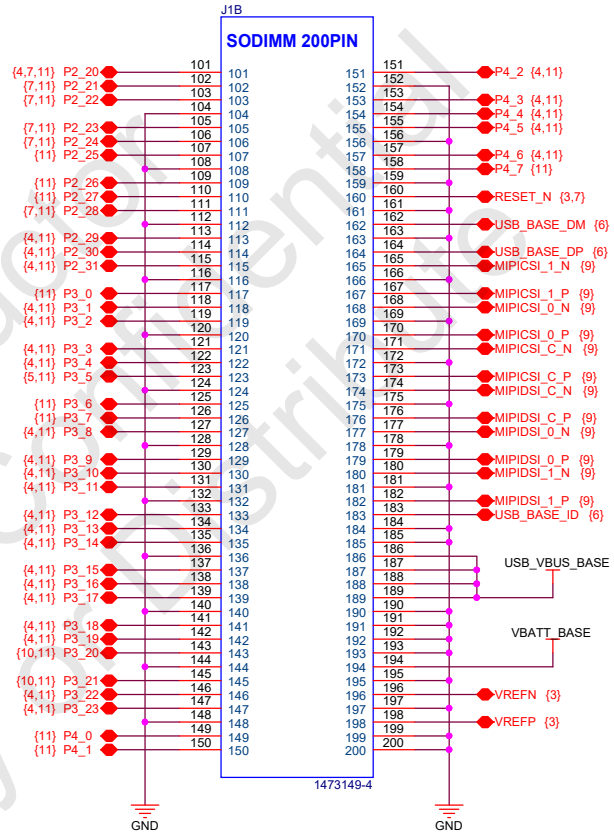
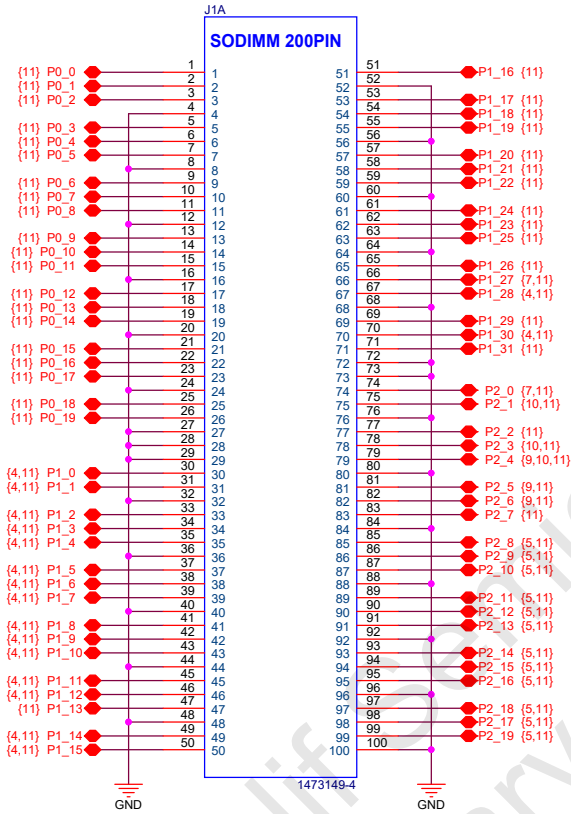
Layout Notes

Other Notes

# THUNDER CARRIER BLOCK DIAGRAM

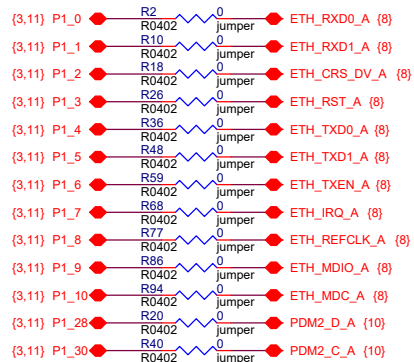


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<b>Title: BLOCK DIAGRAM</b>		
<b>Sch: BASEBOARD</b>		
<b>Size B</b>	<b>Job # 220-00102-B</b>	<b>Sheet 2 of 12</b>
<b>Date: Friday, November 5, 2021</b>		



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<b>Title: 200-PIN_SODIMM</b>	
<b>Sch: BASEBOARD</b>	
<b>Size B</b>	<b>Job # 220-00102-B</b>
<b>Sheet 3 of 12</b>	
<b>Date: Friday, November 5, 2021</b>	

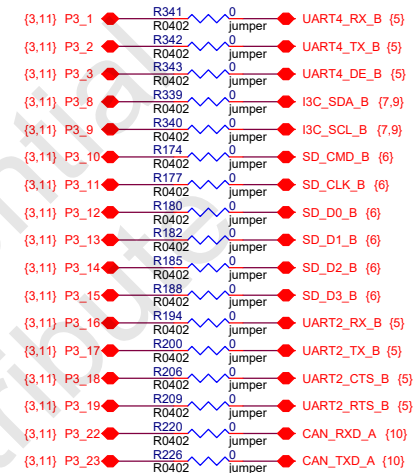
## PORT-1



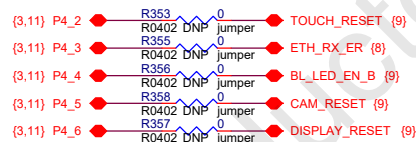
## PORT-2



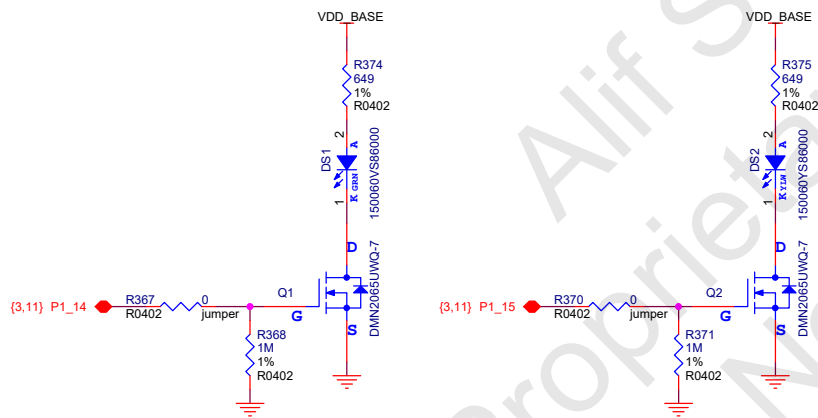
## PORT-3



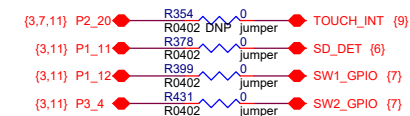
## PORT-4



## LEDs



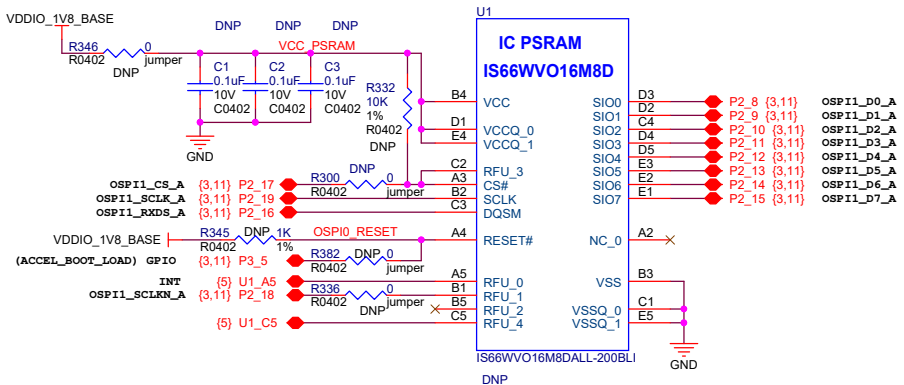
## GPIOs



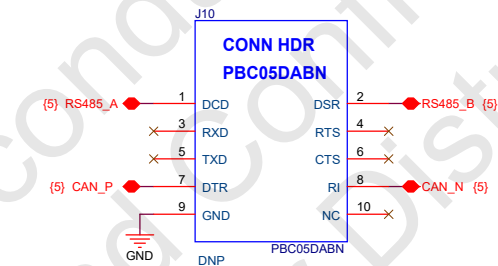
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Title: <b>PORTS &amp; LEADS</b>		
Sch: <b>BASEBOARD</b>		
Size <b>B</b>	Job # <b>220-00102-B</b>	Sheet: <b>4</b> of <b>12</b>
Date: <b>Friday, November 5, 2021</b>		

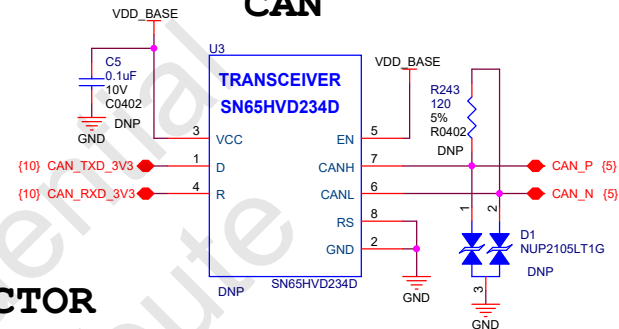
## OSPI



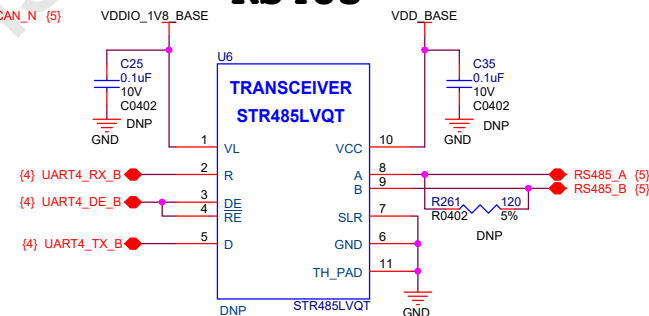
## CAN & RS485 CONNECTOR



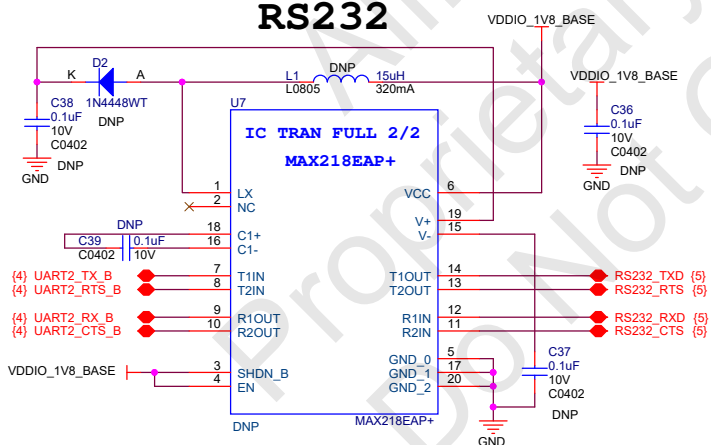
## CAN



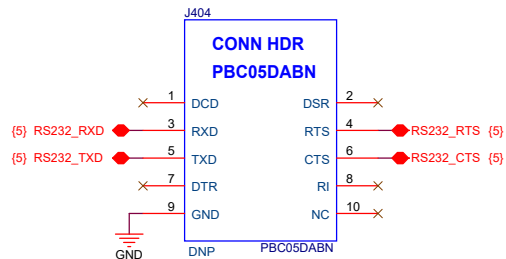
## RS485



## RS232

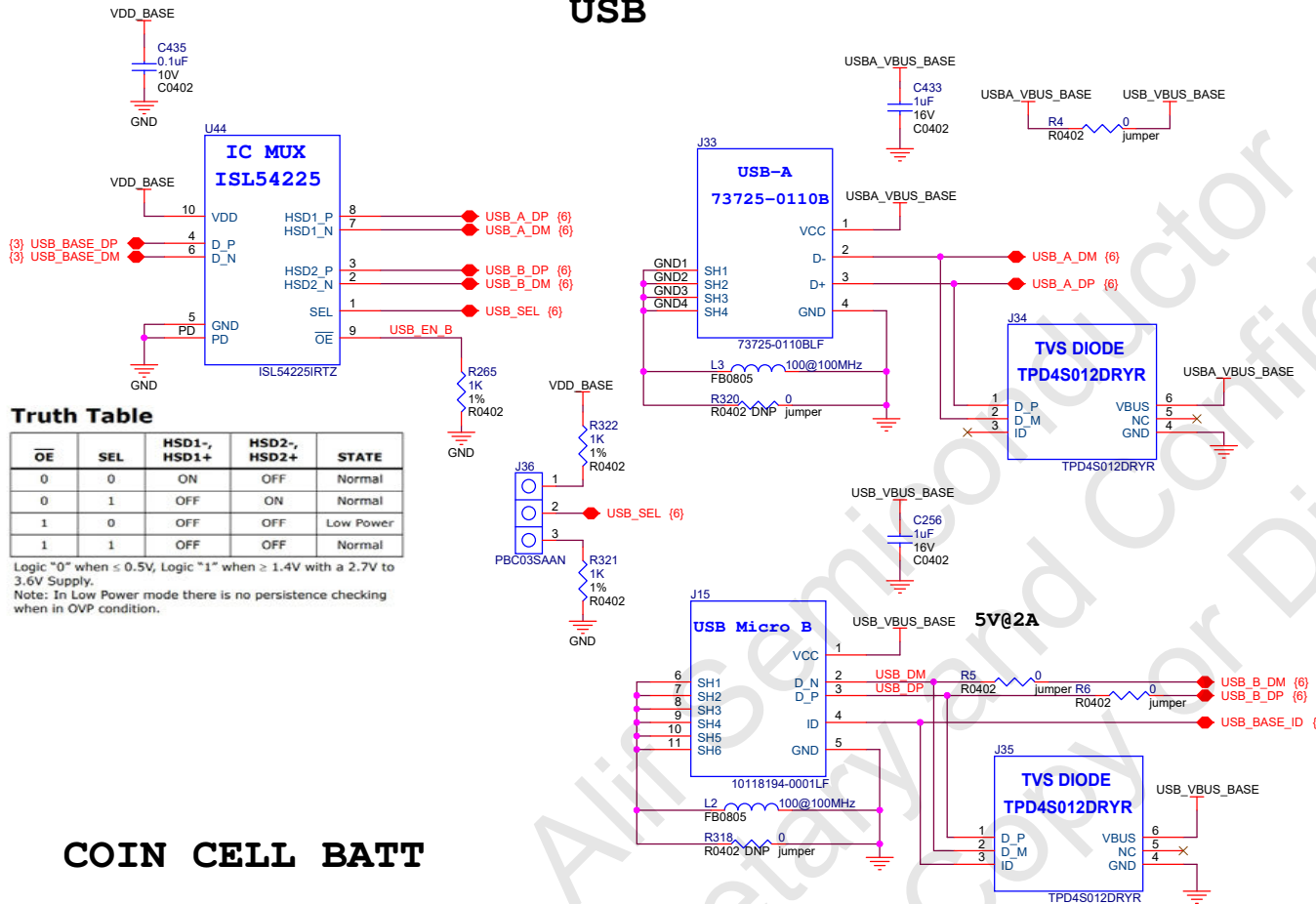


## RS232 CONNECTOR



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<b>Title: OSPI_UART_CAN</b>	
<b>Sch: BASEBOARD</b>	
<b>Size B</b>	<b>Job # 220-00102-B</b>
<b>Sheet: 5 of 12</b>	
<b>Date: Friday, November 5, 2021</b>	

# USB

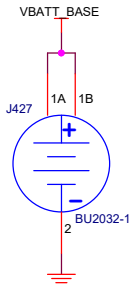


## Truth Table

OE	SEL	HSD1-, HSD1+	HSD2-, HSD2+	STATE
0	0	ON	OFF	Normal
0	1	OFF	ON	Normal
1	0	OFF	OFF	Low Power
1	1	OFF	OFF	Normal

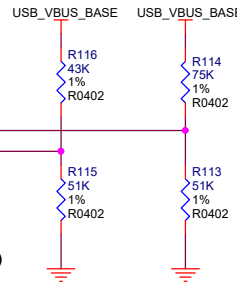
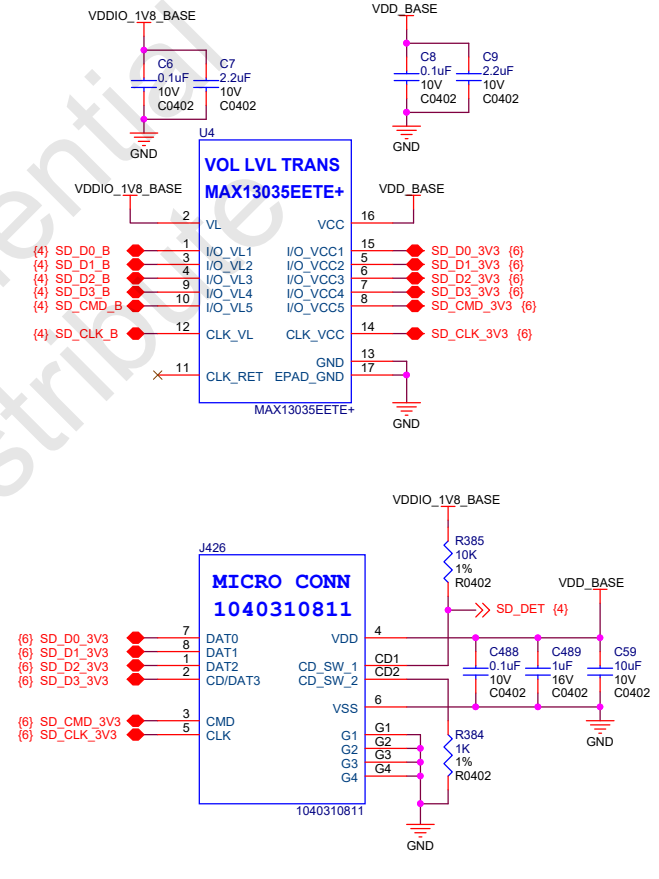
Logic "0" when  $\leq 0.5V$ , Logic "1" when  $\geq 1.4V$  with a 2.7V to 3.6V Supply.  
 Note: In Low Power mode there is no persistence checking when in OVP condition.

# COIN CELL BATT



D+/D- shorted together - USB-IF BC 1.2 standard  
 2.0V/2.0V - low power (500mA)  
 2.0V/2.7V - Apple iPhone (1000mA/5-watt)  
 2.7V/2.0V - Apple iPad (2100mA/10-watt) - Default  
 2.7V/2.7V - 12-watt (2400mA, possibly used by Blackberry)  
 1.2V/1.2V - Samsung devices

# uSD CARD



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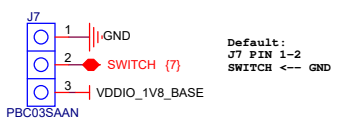
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**Title: USB\_uSD-CARD**

**Sch: BASEBOARD**

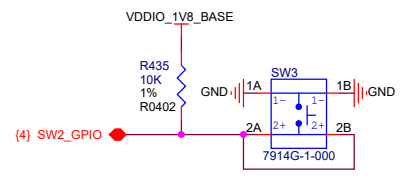
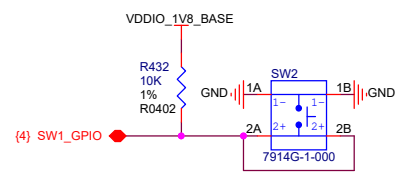
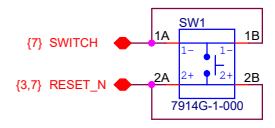
**Size B | Job # 220-00102-B | Sheet: 6 of 12**

**Date: Friday, November 5, 2021**

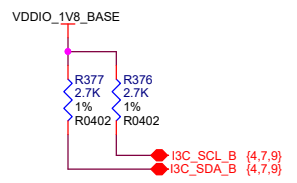


# SWITCHES

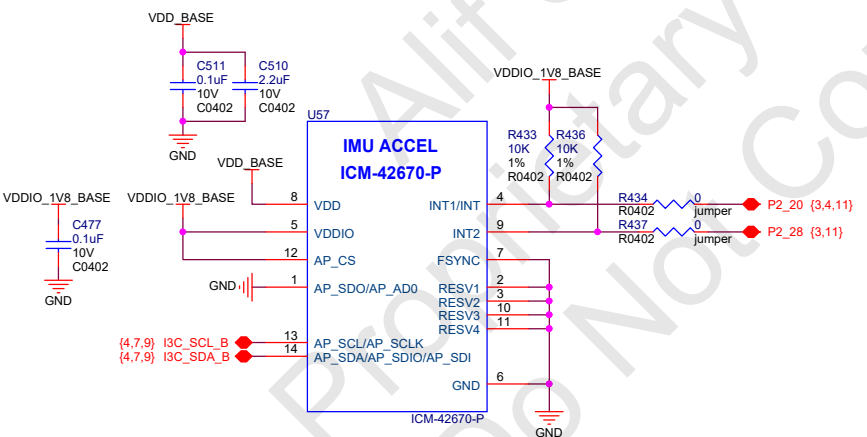
**Layout Notes:**  
Add Silk Screen  
Pin 1 & 2 = "A0"  
Pin 2 & 3 = "B0"



# I3C Pull Ups

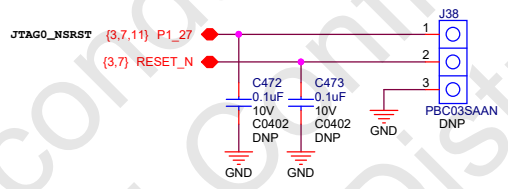
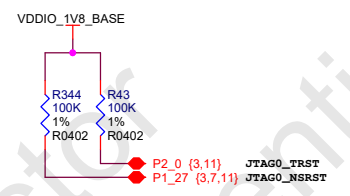


# ACCELEROMETER

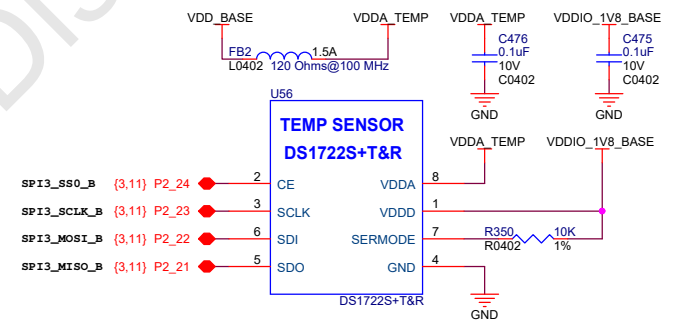


I2C ADDRESS:1101000

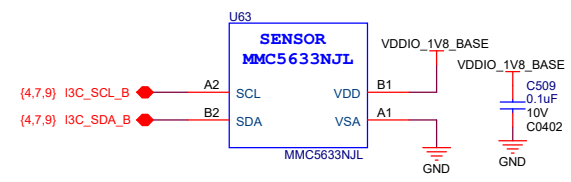
# JTAG



# TEMP SENSOR



# MAGNETOMETER

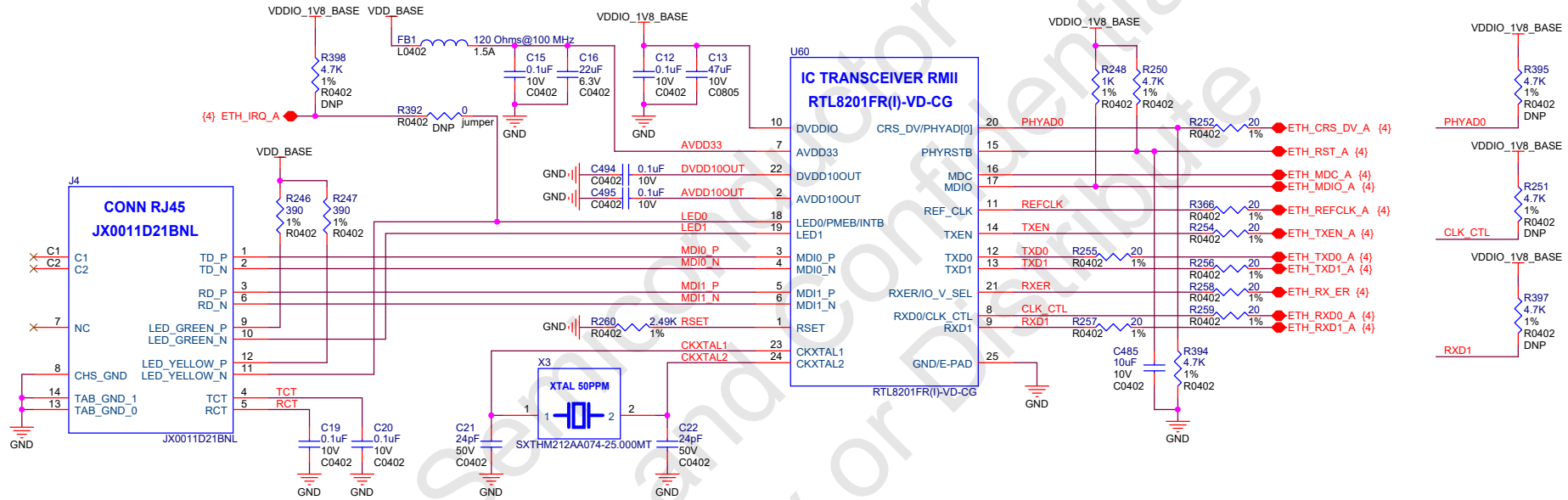


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Title: <b>JTAG_ACCEL_TEMP</b>		
Sch: <b>BASEBOARD</b>		
Size <b>B</b>	Job # <b>220-00102-B</b>	Sheet: <b>7</b> of <b>12</b>
Date: <b>Friday, November 5, 2021</b>		



# ETHERNET

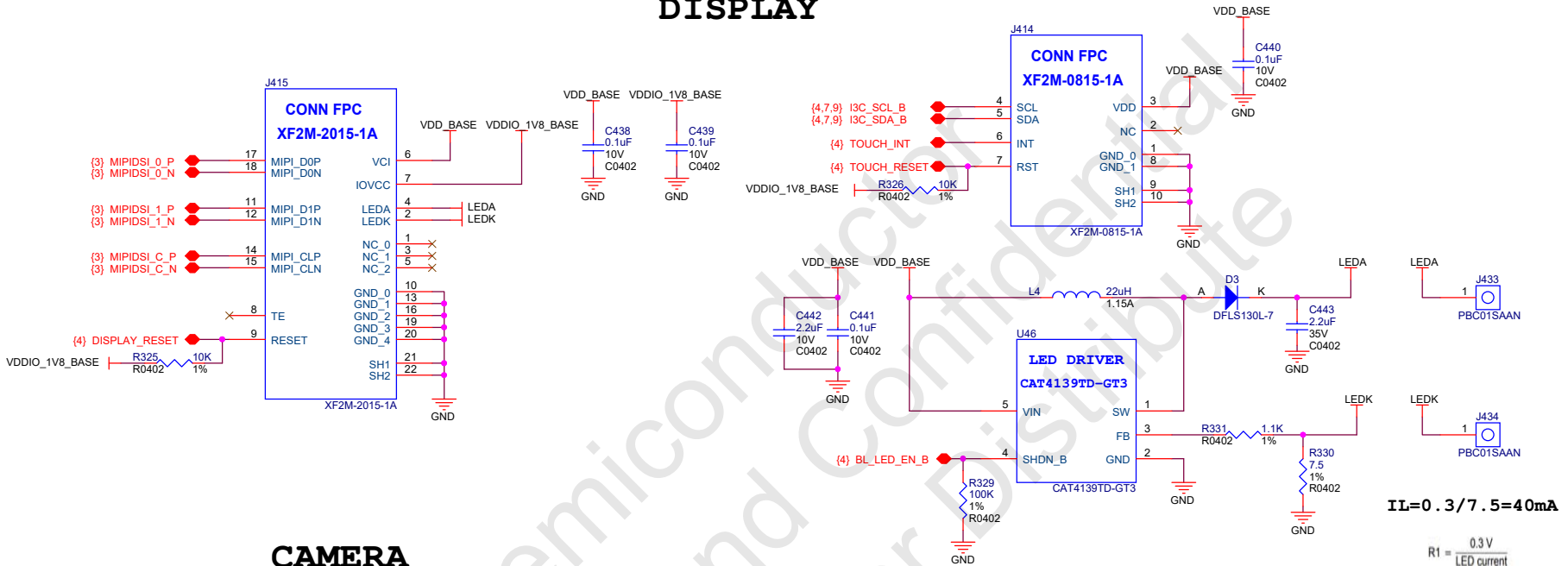


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Title: <b>ETHERNET</b>		
Sch: <b>BASEBOARD</b>		
Size <b>B</b>	Job # <b>220-00102-B</b>	Sheet <b>8</b> of <b>12</b>
Date: <b>Friday, November 5, 2021</b>		



# DISPLAY



$I_L = 0.3 / 7.5 = 40\text{mA}$

$R1 = \frac{0.3\text{V}}{\text{LED current}}$

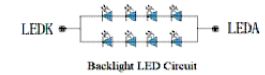
5.3 LED Backlight Characteristics

Item	Symbol	Min	Typ	Max	Unit	Note
Forward Current	IF	20	40	—	mA	
Forward Voltage	VF	—	12.8	—	V	
LCM Luminance	LV	360	405	—	cd/m <sup>2</sup>	Note 3
LED lifetime	Hr	50000	—	—	hour	Note 1 & 2
Uniformity	AVg	80	—	—	%	Note 2

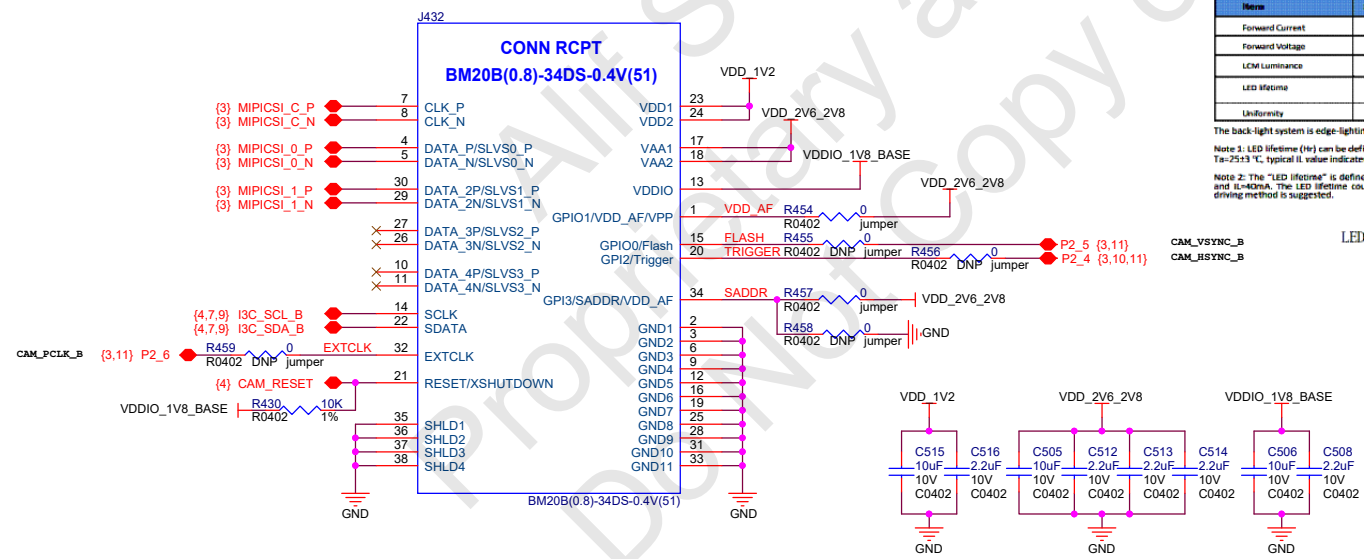
The backlight system is edge-lighting type with 8 chips White LED

Note 1: LED lifetime (Hr) can be defined as the time in which it continues to operate under the condition: Ta=25±3 °C, typical I<sub>L</sub> value indicated in the above table until the brightness becomes less than 50%.

Note 2: The "LED lifetime" is defined as the module brightness decrease to 50% original brightness at Ta=25°C and I<sub>L</sub>=40mA. The LED lifetime could be decreased if operating it is larger than 40mA. The constant current driving method is suggested.



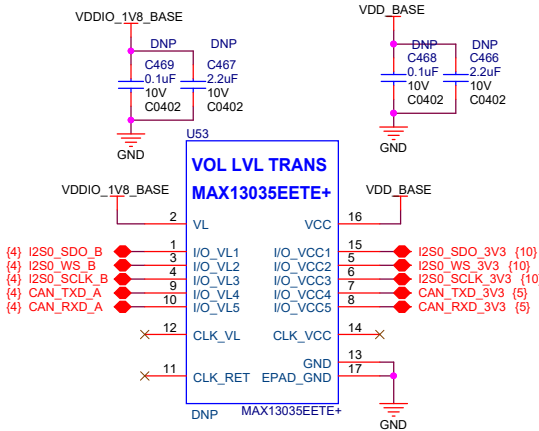
# CAMERA



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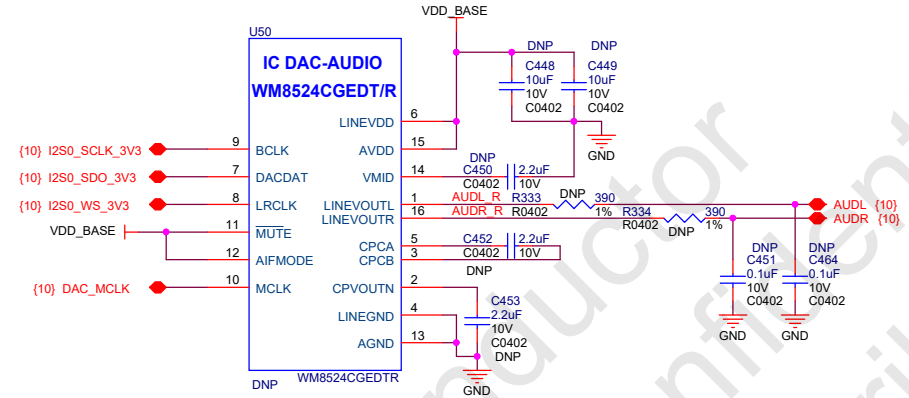
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Title: <b>DISP_CAM</b>		
Sch: <b>BASEBOARD</b>		
Size <b>B</b>	Job # <b>220-00102-B</b>	Sheet <b>9</b> of <b>12</b>
Date: <b>Friday, November 5, 2021</b>		

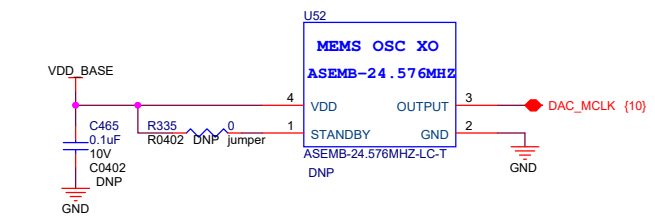


- (4) I2S0\_SDO\_B
- (4) I2S0\_WS\_B
- (4) I2S0\_SCLK\_B
- (4) CAN\_TXD\_A
- (4) CAN\_RXD\_A
- (10) I2S0\_SDO\_3V3
- (10) I2S0\_WS\_3V3
- (10) I2S0\_SCLK\_3V3
- (5) CAN\_TXD\_3V3
- (5) CAN\_RXD\_3V3

# AUDIO



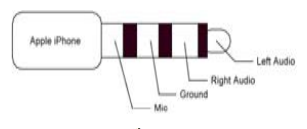
- (10) I2S0\_SCLK\_3V3
- (10) I2S0\_SDO\_3V3
- (10) I2S0\_WS\_3V3
- (10) DAC\_MCLK
- (10) AUDL
- (10) AUDR



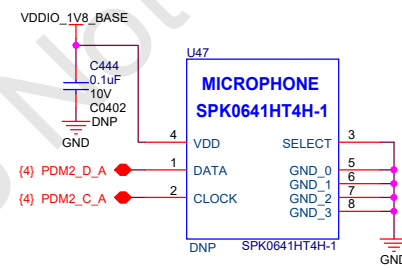
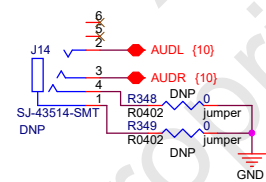
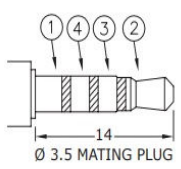
- (3,9,11) P2\_4
- (3,11) P2\_3
- (10) I2S2\_WS\_A
- (10) I2S2\_SCLK\_A

**Layout Notes:**  
Place R387 & R388 close to J1

# HEADPHONE JACK

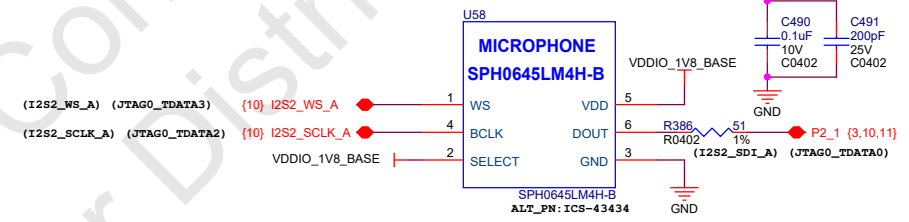


Model No.	SJ-43514-SMT
Schematic	
PIN	
1	sleeve
2	tip
3	ring 1
4	ring 2
5	NP
6	NP



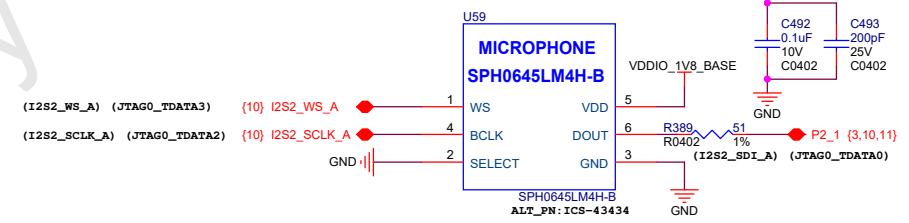
- (4) PDM2\_D\_A
- (4) PDM2\_C\_A

# MICROPHONE



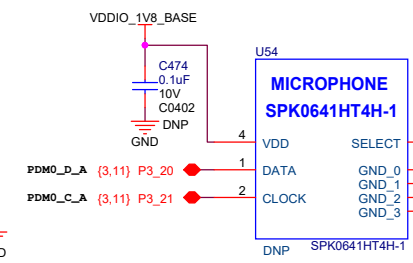
- (10) I2S2\_WS\_A
- (10) I2S2\_SCLK\_A
- (3,10,11) P2\_1

**Layout Notes:**  
Place R386 close to U58



- (10) I2S2\_WS\_A
- (10) I2S2\_SCLK\_A
- (3,10,11) P2\_1

**Layout Notes:**  
Place R389 close to U59



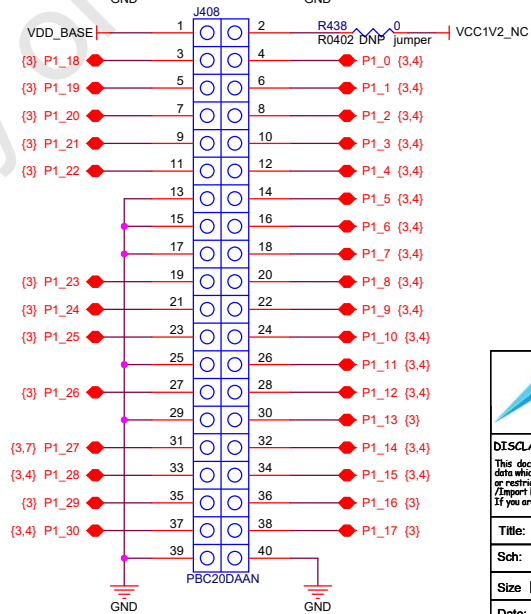
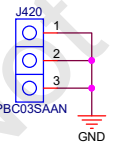
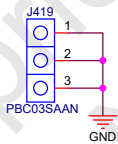
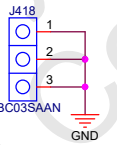
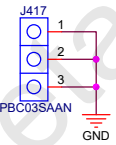
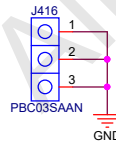
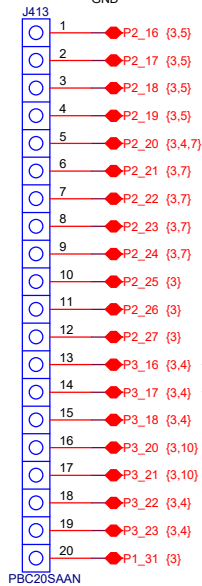
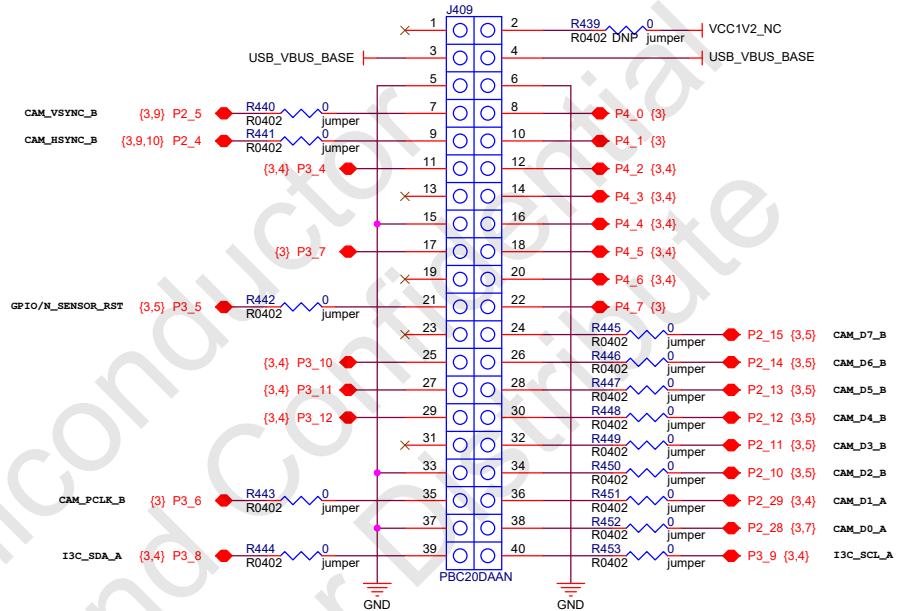
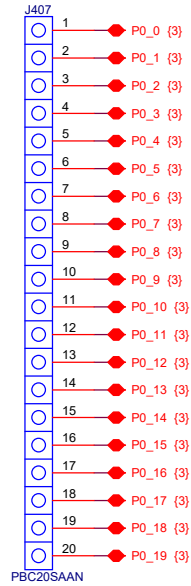
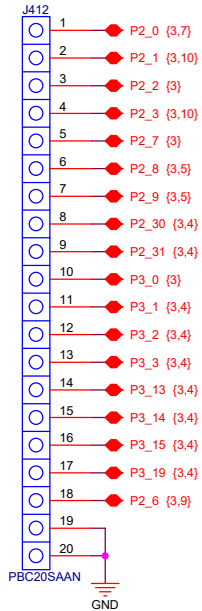
- (3,11) P3\_20
- (3,11) P3\_21

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Title: <b>AUDIO_MIC</b>		
Sch: <b>BASEBOARD</b>		
Size <b>B</b>	Job # <b>220-00102-B</b>	Sheet <b>10</b> of <b>12</b>
Date: <b>Friday, November 5, 2021</b>		

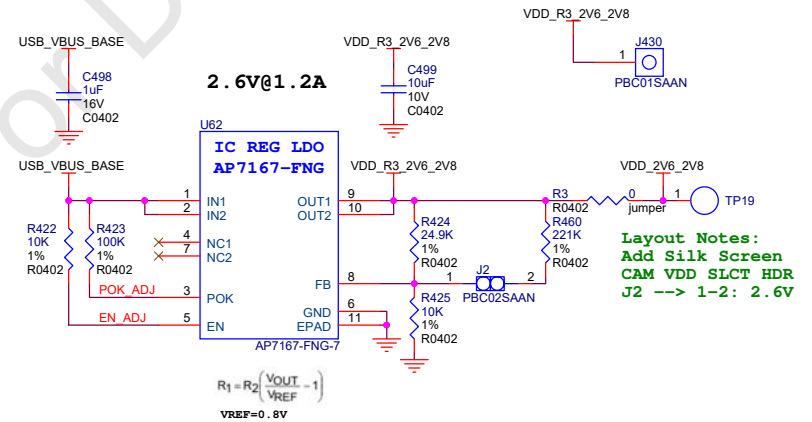
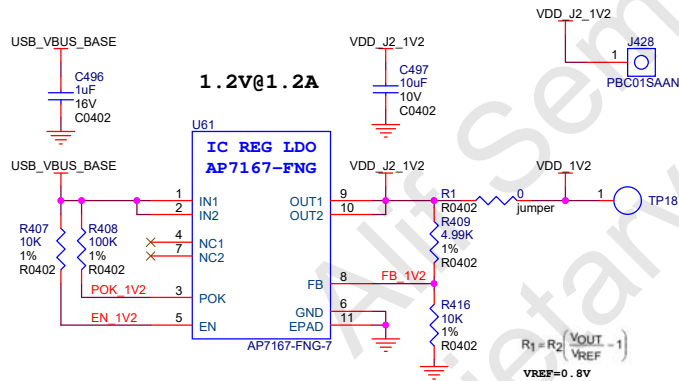
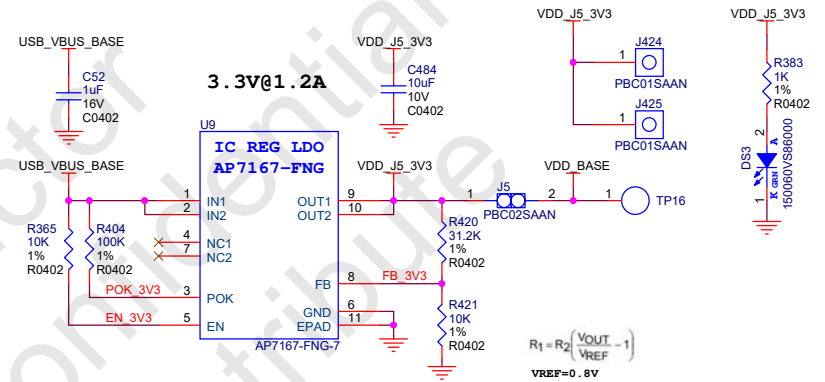
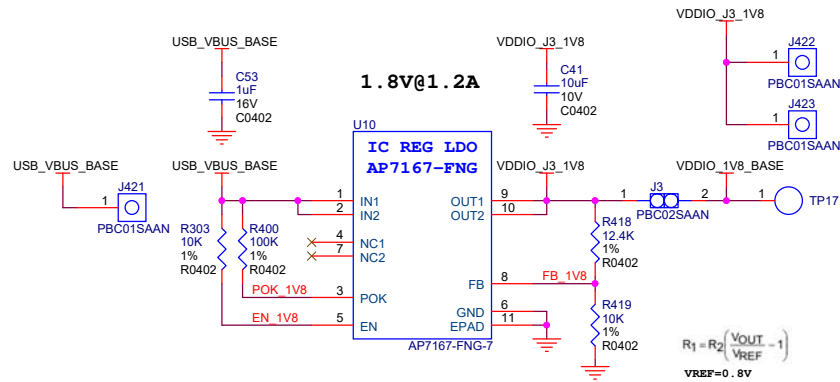
# HEADERS



**Layout Notes:**  
 Mark all headers pin with  
 their number & the net name

	<b>ALIF SEMICONDUCTOR</b> 7901 Stoneridge Drive, Pleasanton CA 94588, USA	
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<b>Title: HEADERS</b>		
<b>Sch: BASEBOARD</b>		
<b>Size B</b>	<b>Job # 220-00102-B</b>	<b>Sheet 11 of 12</b>
<b>Date: Friday, November 5, 2021</b>		

# POWER



**Layout Notes:**  
 Add Silk Screen  
 CAM VDD SLCT HDR  
 J2 --> 1-2: 2.6V

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Title: <b>POWER</b>		
Sch: <b>BASEBOARD</b>		
Size <b>B</b>	Job # <b>220-00102-B</b>	Sheet <b>12</b> of <b>12</b>
Date: <b>Friday, November 5, 2021</b>		